

**ABSTRACT**

A silica glass member manufacturing method of the present invention includes the steps of making a silicon compound react in oxyhydrogen flame using a burner having a multi-tubular structure to obtain fine silica glass particles, depositing the fine silica glass particles on a support rotating and placed to oppose the burner to obtain a silica glass ingot with a temperature distribution in at least one plane perpendicular to a rotational axis of the silica glass ingot, the temperature distribution being symmetrical with respect to the rotational axis and having a maximal value between a center and a peripheral portion of the plane, and obtaining a distribution of signed birefringence values on the basis of birefringence values and directions of phase advance axes measured at a plurality of points in the plane perpendicular to the rotational axis of the silica glass ingot and cutting, from the silica glass ingot, a silica glass member whose signed birefringence values monotonously increase from the center to the peripheral portion of the plane.